

TISHCHENKO, G.N.; ZORKIY, P.M.; PORAY-KOSHITS, M.A.

Electron diffraction study of the crystal structure of nickel and copper inner complex compounds of salicylalimine and its derivatives. Zhur.strukt.khim. 2 no.4:434-444 JI-Ag '61.

(MIRA 14:9)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.  
(Nickel compounds) (Copper compounds)  
(Salicylaldehyde)

ZORKIY, P.M.; PORAY-KORSHTS, M.A.

Structure of molecular crystals. Part 1: Graphic determination  
of the maximum density distribution of figures on a plane.  
Kristallografiia 6 no.5:655-661 S-0 '61. (MIRA 14:10)

1. Moskovskiy gosudarstvennyy universitet imeni Leninskova.  
(Crystallography)

POLEY-MOSNETS, M.A.; ZORIN, P.M.

Similarity and differences in the structures of crystals of  
inner-complex copper and zinc compounds. Zhur. strukt. khim. 2  
no. 1:20-26 Ja-F '61. (RUS 14:0)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.  
(Copper compounds) (Zinc compounds)

ZELENTSOV, V.V.; ZORKIY, P.M.; PORAY-KOSHITS, M.A.

Comparison of the structure of crystals of inner-complex compounds  
of nickel and cobalt group ~~4-04~~. Zhur.strukt.khim. 4 no.3:455-458  
My-Je '63. (MIRA 16:6)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.  
(Nickel compounds) (Cobalt compounds)  
(Crystallography)

LIST AND PROPERTIES INDEX

9

CA

STEELS resistant to heat and acids in wartime economy.  
 - 1944. Zuckley. *Anyegozsághoz Készlet* 24, 15b-68  
 (1944). *Magyar Művelődési Közlöny* 78, 41-8  
 (1944).—Ferritic Cr steels are suitable in cold plants and  
 at points where rather mild acids are present. In plants  
 of continuous heat-treatments or an alternation of cold-  
 and heat-treatments the use of austenitic Cr-Ni steels is  
 recommended. Austenitic Cr-Mn steels, ferritic Cr steels,  
 Cr-Si, and Cr-Al steels are suitable as heat-resisting steels  
 replacing Ni steels.  
 István Földy

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

12

14

123

GEP  
MACHINERY  
VOL 111 1951  
No. 2, Feb.

H. Zurek:  
Connection and effects of the struc-  
ture and stress properties on the app-  
licability of construction steels

70 74

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

ZORKOCZY, B.; KELANDER, A. - Zvaranie - Vol. 4, no. 2, Feb. 1955.

Repairing cast-iron parts by welding. p. 37.

SO: Monthly list of East European Accessions, (EEAL), LC, Vol. 4, No. 9, Sept. 1955  
Uncl.

SOBORNOST, 3.

Welding ledeburite chromium steel. Tr. from the Hungarian. p. 230.  
SLOVENSKY SBORNÍK. (Slovenská akadémia vied) Bratislava. Vol.4, no.  
2, 1955.

SOURCE: East European Accessions List, Vol. 5, no. 9, September 1956



Distr: 4820

Development of a weldable manganese-titanium-aluminum alloyed steel of the St 52 type in Hungary. G. Kertész, F. Sáros, J. A. Varga, and B. Zoltányi. *Acad. Sci. Hung. 127-128 (1978)*.—Confronted with the need to formulate St 52 steel (tensile strength, 52; yield point, 33 kg./sq. mm.) by using alloying materials available in Hungary, the authors investigated the properties of steel contg. Mn, Si, Al, and Ti. They found that Ti steels (0.01-0.17% Ti) show up favorably in tests (notched-bar shock resistance at -50° to +30°, tensile strength, formability), comparing their mech. properties with those of other St 52 steels. Loss of tensile strength on cooling to -40°, on aging, and in the brittlest portion of the welding zone is less for steel contg. Ti than for Ti-free St 52. This compensating effect of Ti is the more marked the higher the content. The fine-grained state of Ti steel is more stable than that of Al steels or of other fine-grained steels. Charts and photomicrographs illustrate these points. J. G. S.

ZORKOCZY, Bela, dr., inz.

Experience with using high-strength weldable steel in the  
Hungarian industry. Zvar sbor 10 no.1:41-50 '61.

1. Vyskumny ustav zelesa, Budapest.

ZORKOCZY, Bela, Dr.

Modern welding methods in the manufacturing of machinery for  
the food industry. Elelm ipar 15 no.5:136-143 My '61.

1. Miskolci Muszaki Egyetem.

CZECHOSLOVAKIA

BANIKOVA, H.; ANTAL, J.; HALABRINOVA, V.; ZORKOCY, D.; Department of Physiology, Medical College, Comenius University (Fysiologicky ustav LFUK), Bratislava.

"Effect of Muscular Effort on Renal Function in Dogs."

Prague, Ceskoslovenska Fysiologie, Vol 14, No 5, Oct 1965; p 338.

Abstract: A decrease of renal function during 30 minutes running by 8 dogs in 25 experiments was found in all of the 7 parameters measured, including 53% decrease in diuresis. This was found to be due to reduced glomerular filtration rate. Changes reverted to normal within 30 minutes after exercise. 4 Western references. Paper presented at the 15th Physiology Days, Olomouc, 27 May 65.

1/1

LIST AND TWO GROUPS																									
PROCESSING AND PROPERTIES INDEX																									
<p>CA</p> <p>The formation of ergosterol in yeast. <i>Zuckerm.</i>  <i>Congr. intern. tech. chim. ind. agr., chim. rend., Vp.</i>  <i>congr., Budapest 3, 10-10(1949); Chem. Zentr. 1940, II,</i>  <i>913. In culture tests on yeast it was found that a marked</i>  <i>fatty degeneration of the yeast, which is a preliminary</i>  <i>condition for an increase in ergosterol content, took place</i>  <i>when the yeast was used as the only nutrient with strong</i>  <i>aeration of the products of fermentation (ale, MeCHO,</i>  <i>etc.). An increase in ergosterol content up to 3-4 that</i>  <i>of normal yeast could be obtained on a tech. scale. A</i>  <i>method for the colorimetric det. of ergosterol which is suit-</i>  <i>able for operational control is described. M. G. Moore</i></p>																									
<p>ASM-ILA METALLURGICAL LITERATURE CLASSIFICATION</p>																									
<p>FROM SYNONYMS</p>																									
<p>GROUPS</p>																									

SOV/137-58-12-24426

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 12, p 68 (USSR)

AUTHOR: Zorkov, A. F.

TITLE: Making Balls on Rolling Mills (Izgotovleniye sharov na prokatnykh stanakh)

PERIODICAL: Prom.-ekon. byul. Sov. nar. kh.-va Sverdl. ekon. adm. r-na, 1958, Nr 4, pp 43-44

ABSTRACT: Special automatic rolling mills are used at the Novo-Kramatorskiy Machinery Plant to make steel balls 30 to 125 mm in diameter. The "billets" are hot-rolled steel rounds 2-6 m in length and 2-4 mm less in diameter than the resulting balls. Below-standard steel may be used. The production of the mills in making balls of 30-40, 40-80, and 80-125 mm diam is, respectively, 120, 60-120, and 40-60 pieces per min.

V. D.

Card 1/1

ZORKOV, YE. I.

О. Е. Наместник

Переходный процесс в полупроводниковой цепи при протекании через него в режиме насыщения импульсов тока малой длительности.

А. С. Борисов

Приближенный метод расчета нелинейных процессов в полупроводниковой цепи при больших отклонениях.

А. А. Зарин

Исследования работы полупроводниковых транзисторов в режиме термостата с использованием метода при больших уровнях сигнала.

М. А. Бир

Применение теории транзисторов в дифференциальной полупроводниковой цепи.

С. А. Гармаш

Полупроводниковые диоды с нелинейными характеристиками в режиме насыщения и в режиме насыщения.

10 минут

(с 10 до 16 часов)

Самостоятельное исследование с использованием методов нелинейной теории.

16

В. Н. Голубев

Динамический процесс в полупроводниковой цепи при протекании через нее импульсов тока малой длительности.

А. В. Горюнов

Е. А. Голубев

С. М. Бир

Т. М. Катанов

В. А. Казанцев

Специальные расчеты влияния нелинейных процессов на полупроводниковую цепь.

А. Н. Нестеров

Т. М. Агапова

М. С. Бир

В. А. Голубев

С. М. Бир

В. А. Казанцев

А. Г. Фадеев

В. Н. Голубев

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В. Н. Голубев

Report submitted for the Confidential Meeting of the Scientific Technological Society of  
Radio Engineering and Electrical Communications in A. S. Paper (VRSSE), Moscow,  
8-18 June, 1959

ZORKOV YE I.

<p>11 июня (с 18 до 22 часов)</p> <p>Д. Н. Волкович, Р. Р. Арташ</p> <p>Математика, испытания, фотографии и почтовый телеграф.</p> <p>А. А. Бродянский, Н. Н. Мельников</p> <p>О переселении эмигрантов в связи с перемещением населения.</p> <p>А. А. Бродянский</p> <p>Об эмиграции русских при перемещении населения.</p> <p>В. А. Герасим</p> <p>К вопросу перемещения населения.</p> <p>12 июня (с 10 до 16 часов)</p> <p>М. С. Зорков, С. В. Мельников</p> <p>Вопросы теории и практики перемещения населения.</p>	<p>М. С. Зорков</p> <p>Фототехническое устройство для изучения качества изображения при перемещении населения.</p> <p>14 СЕКЦИЯ ЭЛЕКТРОННО-РАДИОТЕХНИЧЕСКОЙ ТЕХНИКИ</p> <p>Руководитель: М. С. Зорков</p> <p>18 июня (с 10 до 16 часов)</p> <p>Специальное заседание с целью перемещения населения.</p> <p>В. А. Герасим</p> <p>Доклад о работе группы по перемещению населения.</p> <p>А. А. Бродянский, Н. Н. Мельников, С. В. Мельников, В. А. Герасим, Г. В. Мельников</p> <p>Специальное заседание с целью перемещения населения.</p> <p>М. С. Зорков, Т. М. Мельников, Н. С. Мельников</p>
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report submitted for the Confidential Meeting of the Scientific Technological Society of  
Radio Engineering and Electrical Communications in. A. S. Zorov (YORKS), Moscow,  
8-12 June, 1959



SHOYKHET, M.I.; ZOROV, V.P.

Determining the content of alcohol and of extract in alcohol  
containing juices. Spirt.prom. 25 no.8:26-27 '59.  
(MIRA 13:3)

(Fruit juices) (Alcohol)

ZORKOVSKY, BELO

Chemical Abst.

Vol. 48 No. 3

Feb. 10, 1954

Mineralogical and Geological Chemistry

The origin of bauxites. (Russian) *Trudy Akad. Nauk SSSR, Seriya Khim. Nauk*, 1953, No. 1, 218-31 (1952) (German summary). --A review with 40 references. Michael Fleischer

EM  
April 16, 1954

ZORKOVSKY, Bela

Feb. 10, 1954

Mineralogical and Geological Chemistry

2.  
(2)  
Slovakian bauxite and its genesis. *Vlastopisnych* (Tech.  
Zbornik, Bratislava, Czechoslovakia, 1953, No. 1,  
69-102) (German summary). Bauxite and related  
bauxite occurs in layers and patches in France and near  
Markusov, Czech. bauxite and decomposition products  
iron,  $Al_2O_3$ , is present in bauxite, and bauxite is a  
gibbsite and much residue of hydroxide.  
H. H. H. H. H.

"APPROVED FOR RELEASE: 03/15/2001

CIA-RDP86-00513R002065430003-8

APPROVED FOR RELEASE: 03/15/2001

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APPROVED FOR RELEASE: 03/15/2001

CIA-RDP86-00513R002065430003-8"

ZORKOVSKY, B.

ZORKOVSKY, B. A few notes on the question of finds of magnesite near  
Pliesovce. p.134.

No. 3, 1955, GEOLOGICKE PRACE; ZPRAVY, BRATISLAVA, CZECHOSLOVAKIA.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, No. 10,  
Oct. 1956.

ZORKOVSKY, B.

New classification of the deposits of mineral raw materials.  
p. 148.

Slovenska akademia vied. GEOROLOCKY SEBORNÍK. CZECHOSLOVAKIA

Vol. 6, No. 1/2. 1955.

SOURCE: East European Accessions List (EEAL) Library  
of Congress. Vol. 5, No. 1, January, 1956.

ZORKOVSKY, B.

Problem of the origin of magnesite. p. 177.

Slovenska akademia vied. GEOROLOGICKY SBORNIK. CZECHOSLOVAKIA

Vol. 6, No. 1/2, 1955.

SOURCE: East European Accessions List (EEAL) Library  
of Congress. Vol. 5, No. 1, January, 1956.



"APPROVED FOR RELEASE: 03/15/2001

CIA-RDP86-00513R002065430003-8

ZARKOVSKY, A

APPROVED FOR RELEASE: 03/15/2001

CIA-RDP86-00513R002065430003-8"

ZORKOVSKY, B.

Short outline of the geologic structure of Slovakia and the occurrence of useful minerals. p. 109.

RUDY, Praha, Vol. 3, no. 4, Apr. 1955.

SO: Monthly List of East European Accessions, (SEAL), LC, Vol. 4, no. 10, Oct. 1955,  
Uncl.

**"APPROVED FOR RELEASE: 03/15/2001**

**CIA-RDP86-00513R002065430003-8**

**APPROVED FOR RELEASE: 03/15/2001**

**CIA-RDP86-00513R002065430003-8"**

BELO, ZORKOVSKY

CZECHOSLOVAKIA/Cosmochemistry - Geochemistry. Hydrochemistry.

D.

Abs Jour : Ref Zhur - Khimiya, No 9, 1957, 30382

Author : Zorkovsky Belo

Inst :

Title : Chemical Nature of Garnet from Garnetized Andesite North-West of the Village Vel'ky Saris (Eastern Slovakia)

Orig Pub : Geol. sbor. SAV, 1956, 7, No 3-4, 321-331

Abst : A study of andesite with large porphyric xenoblasts of amphiboles, pyroxenes, plagioclases of andesine-labradorite series and garnet phenocrysts (of almandine): principal body consists of microcrystals of more acidic plagioclases, ore minerals, chlorite and calcite. Chemical composition of andesite (in %):  $\text{SiO}_2$  58.71,  $\text{TiO}_2$  0.61,  $\text{Al}_2\text{O}_3$  16.82,  $\text{Fe}_2\text{O}_3$  3.02,  $\text{FeO}$  3.13,  $\text{MnO}$  0.15,  $\text{MgO}$  2.59,  $\text{CaO}$  6.78,  $\text{Na}_2\text{O}$  3.15,  $\text{K}_2\text{O}$  1.81,  $\text{P}_2\text{O}_5$  0.13,  $\text{H}_2\text{O}^-$  0.62, other extraneous admixtures 2.23, total 99.75. Chemical composition of almandine (in %):

CZECHOSLOVAKIA/Cosmochemistry - Geochemistry. Hydrochemistry.

D.

Abs Jour : Ref Zhur - Khimiya, No 9, 1957, 30382

SiO<sub>2</sub> 38.20, TiO<sub>2</sub> 0.15, Al<sub>2</sub>O<sub>3</sub> 21.63, Fe<sub>2</sub>O<sub>3</sub> 3.32, FeO

23.51, MnO 2.15, CaO 4.62, MgO 3.90, other extraneous admixtures 1.72, total 99.20. Formation of garnet is due to processes of autometamorphism.

Card 2/2

ZORKOVSKY, Belo

SURNAME, Given Names

Country: Czechoslovakia

Academic Degrees: Dr, Professor

Affiliation: Chair of Geology and Mineralogy, Faculty of Mining, Institute of Technology (Katedra geologie a mineralogie Banskej fakulty Vysockej školy technickej), Kosice

Source: Bratislava, Nasa Veda, Vol VIII, No 8, 1961, pp 488-492.

Data: "East Slovakian Mineral and Healing Springs."

Z. O R I K O V S K I Y , B.

16(1); 18(3); (6);  
22(2); 11(2); 14(5) PHASE I ROCK EXPLOITATION CZECH/2579

Shorak vedycky prac vysoké školy technické v Kolicach.  
II, 1957 (Collection of Scientific Works of the Higher  
Technical School in Kolic. II, 1957) Bratislava. SVTL,  
1957. 198 p. 1,300 copies printed.

Resp. Ed.: Igor Yákov; Tech. Ed.: P. M. Sialko; Chief Ed.:  
Pavel Kolicov, Engineer.

PURPOSE: This collection of articles is intended for scientists  
and engineers interested in the subjects discussed.

COVERAGES: This collection of 13 articles written by members of  
the faculty of the Kolic Higher Technical School covers a  
variety of subjects, including mathematics, metallurgy,  
mining engineering, etc. Each article is accompanied by a  
resume in Slovak, Russian, and German. References are  
listed at the end of each article; the majority of listings  
are Slovak, Russian, and Soviet.

# Collection of Scientific Works (Cont.) CZECH/2579

Schrek, Petr J., Professor, Engineer, Doctor (Department  
of Ore and Coal Beneficiation) Use of Radioactive Isotopes  
in Ore and Coal Beneficiation

1. Use of radioactive isotopes for research on  
technical mineral processes in beneficiation of  
useful minerals 133
2. Use of radioactive isotopes for the separation  
of useful minerals 160
3. Use of radioactive isotopes for the control and  
analysis of technological processes in a bene-  
ficiation plant 161

## Resumes

References  
Zakavsky, B. Doctor, Doctor of Natural Sciences. Brief  
summary of scientific, technical, and mineral deposits in  
the Russian People's Republic

## References

AVAILABILITY: Library of Congress

Card 8/8

197

199

19/45

12-1-59

ZORKOVSKI, B.

TECHNOLOGY

periodicals: SBORNIK VEDECHYCH PRAC Vol. 2, 1957

ZORKOVSKI, B. A short survey of geologic conditions and mineral resources of the Rumanian People's Republic. p.179.

Monthly List of East European Accession (FEAL) IC Vol. 1, no. 5  
May 1959, Unclass.



ZOR KOVSKY, B.

56

Petrographic-chemical character of the metagraywacke rocks  
of "Panská," north of Šalková. (Belo Zorkovský) (Tech.  
Hochschule, Kollár, Czech.). (1964). Praha, July 13.  
61-78, 1968 (German summary). -- Petrographic data and  
chem. analyses of 2 rocks are given. Preliminary data and  
analyses contained  $\text{SiO}_2$  41.73,  $\text{Al}_2\text{O}_3$  19.93,  $\text{Fe}_2\text{O}_3$  7.17,  $\text{MgO}$   
0.60,  $\text{CaO}$  25.75,  $\text{H}_2\text{O} + \text{CO}_2$  5.01,  $\text{H}_2\text{O}$  0.10, and 100.42%  
sp. wt. 2.78. Michael Fritzsche

ZCRKOVSKY, B.

A brief survey of the geologic conditions and the occurrence of ore deposits in the Rumanian People's Republic. p.163.  
(Rudy, Vol. 5, No. 5, May 1957, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, No. 9, Sept. 1957. Uncl.

ZORKOVSKY, B.

GEOGRAPHY & GEOLOGY

Periodicals: GEOLOGICKE PRACE; ZPRAVY. No. 14, 1958

ZORKOVSKY, B. Report on petrographic-chemical studies of the melaphyre rocks rising southeast of the village of Modrova in the Inovec massif of the Vah River area. p. 17.

Monthly List of East European Accessions (EEAI) IC, VOL. 8, No. 5,  
May 1959, Unclass.

ZCRKOVSKY, Bohumil, prof., dr. (Kosice)

Saxon Erzgebirge, the ore base of the German Democratic Republic. Rudy 10 no.2:37-43 F '62.

EA

Chemical character of the garnets of garnetiferous endo-  
mites from near Tloofee and Blatov. Vojtech Zerkovský  
(Slovenské vysoké školy techn., Bratislava). Geol. Sb. (Bratislava) 1, 225-311 (1930) Russian and French sum-  
maries).--Analyses are given. These show almandine 63.2,  
66.2, grossularite 37.4, 28.8, spessartite 5.2, 2.8, pyrope  
5.2, 2.8%, resp.  
Michael Fleischer

CZECH/3-59-16-21/28

(  
AUTHOR: Žorník, D.; Lušník, K.; Pjasecká, G.; Stasevič, P;  
and Storčienko, P.  
TITLE: The Parachutist's Physical Training (taken from a  
book by the above listed authors: "Theory and Prac-  
tice of Parachutist Training")  
PERIODICAL: Křídla Vlasti, 1959, Nr 16, pp 24-25 (CSR)  
ABSTRACT: This is the concluding part of a serial article con-  
taining physical training instructions for parachutists.  
There are 14 drawings.

Card 1/1

4

5(3)  
AUTHORS:

SOV/62-59-9-10/40  
Arbuzov, B. A., Zorostrova, V. M., Saykina, H. K.

TITLE:

Thermographic Studies of the Isomerization Reaction of the  
Glycol Phosphorous Acid Esters, Containing a Six-membered Ring,  
Under the Action of Alkyl Halides

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,  
1959, Nr 9, pp 1579-1584 (USSR)

ABSTRACT:

The authors had carried out previous investigations similar to those mentioned in the title, in which they proved that the isomerization reaction proceeds in two phases. They also succeeded in finding information on the influence of the radical structure exerted on the capacity of the esters to isomerize (Arbuzov and Razumova, Ref 2). In the present paper the investigations are continued with the reaction of the esters of trimethylene glycol- (I) and  $\alpha$ -methyl trimethylene phosphorous acid (II) with alkyl halides. The methods of investigation were similar to those of reference 1. A pyrometer of the PK-52-type was used and butylphthalate was taken as standard. Table 1 contains the physical constants of the compounds investigated. Only one phase could be observed on the thermograms of the methyl-

Card 1/3

SOV/62-59-9-10/40  
Thermographic Studies of the Isomerization Reaction of the Glycol Phosphorous  
Acid Esters, Containing a Six-membered Ring, Under the Action of Alkyl Halides

ethyl- and n-propyl esters of compounds (II) and the methyl- and benzyl esters of (I). The experimental data are shown on table 2 and figures 1-7. Herefrom the following could be concluded: the isomerization process of alkyl glycol esters with six-membered rings occurs under participation of the alkyl radical without destruction of the ring according to the scheme already earlier assumed by Arbuzov; a simultaneous formation of the esters of alkyl phosphinic acid takes place. The isomerization of the phenyl ester of (I) occurred unexpectedly also in one phase only, a ring opening was, however, observed in the analysis of the reaction products. A mixture of phenyl-γ-iodine propyl ester of methyl phosphinic acid forms when methyl iodide acts upon the phenyl ester of 1. In the isomerization reaction of the ethyl ester of pyrocatechol phosphorous acid with ethylbromide again only an exothermic effect was observed. A cyclic pyrocatechol ester of ethylphosphinic acid was formed, which is in accordance with the results of Arbuzov and Valitova (Ref 9). The ester radicals were therefore found to exert an influence on isomerization. There are 7 figures,

Card 2/3



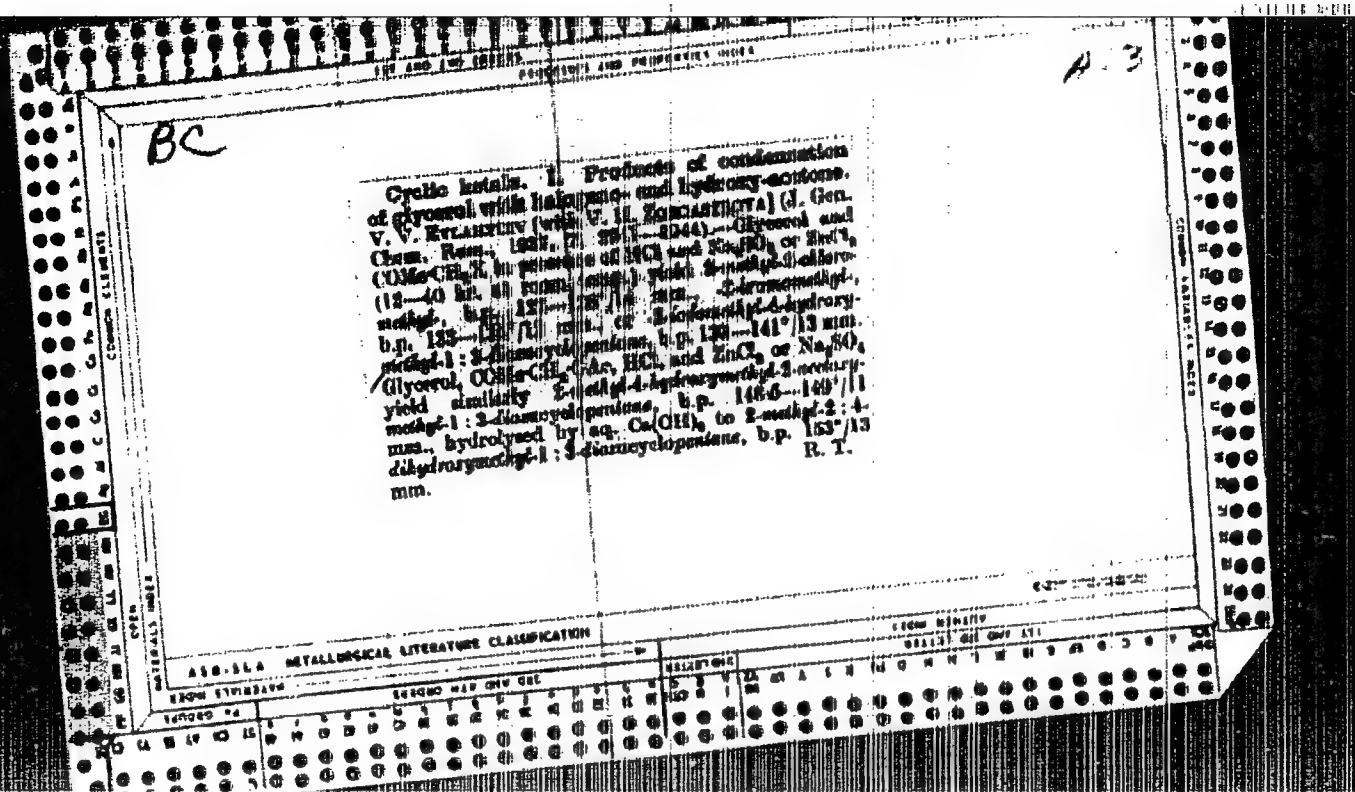
SOV/62-59-9-10/40  
Thermographic Studies of the Isomerization Reaction of the Glycol Phosphorous  
Acid Esters, Containing a Six-membered Ring, Under the Action of Alkyl Halides

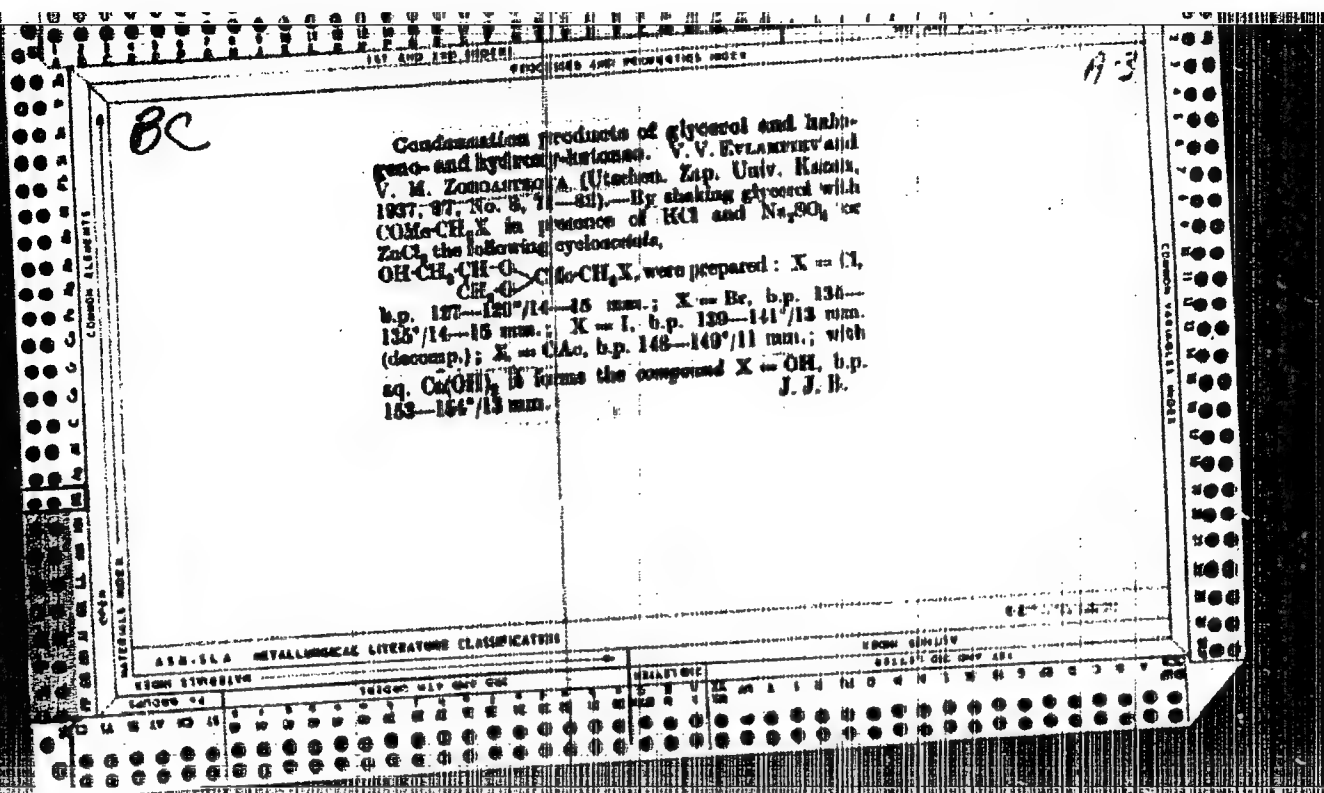
3 tables, and 9 references, 7 of which are Soviet.

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Ul'yanov-Lenin)

SUBMITTED: January 9, 1958

Card 3/3





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Some alkyl esters of aryl- and diarylarsenous acids. G.M. Kamal and V. M. Zarnitskova. J. Gen. Chem. (U. S. S. R.) 10, 921 (1960). The arsenous acid exists in 2 tautomeric forms,  $As(OH)_3$  and  $HA-O(OH)_2$ , the alkyl esters of aryl- and diarylarsenous acids should have properties analogous to those of phosphorus acid esters.  $Ph_3As(OH)_3$ , bp 119-21°, d<sub>4</sub> 1.5641, d<sub>20</sub> 1.5447, n<sub>D</sub> 1.4863, yield 50.4%;  $Ph_2As(OH)_3$ , bp 147-48°, d<sub>4</sub> 1.4884, d<sub>20</sub> 1.3621, n<sub>D</sub> 1.5537, yield 81.3%;  $PhAs(OH)_3$ , bp 139-40°, b. 128-9°, d<sub>4</sub> 1.3524, n<sub>D</sub> 1.5100, yield 57.2%;  $(iso-PrO)_2AsPh$ , bp 118-18°, d<sub>4</sub> 1.3451, d<sub>20</sub> 1.3020, n<sub>D</sub> 1.5100;  $PhAs(OBu)_3$ , bp 147-48°, d<sub>4</sub> 1.3428, d<sub>20</sub> 1.3208, n<sub>D</sub> 1.5511, yield 50.0%;  $(iso-BuO)_2AsPh$ , bp 144-4.5°, d<sub>4</sub> 1.3287, n<sub>D</sub> 1.5103;  $(iso-AmO)_2AsPh$ , bp 153-4.5°, d<sub>4</sub> 1.2909, d<sub>20</sub> 1.2825, n<sub>D</sub> 1.5402, yield 52.1%;  $Ph_2As-OEt$  (I), bp 160.5-7°, d<sub>4</sub> 1.2764, d<sub>20</sub> 1.2503, n<sub>D</sub> 1.5023, yield 54.3%;  $Ph_2AsOPr$  (II), bp 174-5°, d<sub>4</sub> 1.2631, d<sub>20</sub> 1.2248, n<sub>D</sub> 1.5025;  $Ph(p-C_6H_5)AsOEt$ , bp 178-80°, d<sub>4</sub> 1.2821, d<sub>20</sub> 1.2690, n<sub>D</sub> 1.6120, yield 65.7%;  $Ph(p-C_6H_5)-IOPr$ , bp 188-9°, d<sub>4</sub> 1.2121, d<sub>20</sub> 1.2000, n<sub>D</sub> 1.5905, have been prepd. from  $PhAsCl_3$ ,  $Ph_2AsCl$  and  $Ph(p-C_6H_5)AsCl$ , resp., and the corresponding Na alkylolates. The above compds. could not be characterized by heating with alkyl iodide. I.  $CH_3I$ , m. 100-2° (decomp.). II.  $CH_3I$ , m. 140-2°. The b. ps. of some of the above compds. are compared with those of analogous derivs. of phosphorus acid and the results, given in a table, show that the derivs. of As do not have always a higher b. p. than the corresponding derivs. of P. Artemis Herend

AS 5.1.1 METALLURGICAL LITERATURE CLASSIFICATION

G. CHEM. 12. 12. 12.

Asymmetrical analogs of cycodyl oxide. (U. S. S. R.) 16  
and V. M. Zorin, 1979. J. Gen. Chem. (U. S. S. R.) 16  
1365-72 (1941). — A yield of 11.5 g. bis(methylphenylarsine)  
oxide (I) was obtained from 27 g. MeEtAs, bp 70-74°  
(Wigren, bp 67-8°, C. A. 24, 4259). 1 (10.5 g.) in 8.5 cc. of  
10 N NaOH was saponified 30 hrs. with a soln. of 1.5 g.  
ClCH<sub>2</sub>CO<sub>2</sub>H neutralized with NaOH. HCl was added  
to the mixt. until acid to Congo red. The solvent was  
evapd. on a water bath, NaCl was filtered off and the  
filtrate put in a desiccator over H<sub>2</sub>SO<sub>4</sub>. After reduction  
of the aq. soln. of methylphenylarsinic acid with  
H<sub>2</sub>S a microcrystalline oily liquid with a very unpleasant  
odor was obtained. To a mixture of 57.5 cc. 10 N NaOH  
soln. and 65 cc. 90% alc. 50 g. EtAs<sub>3</sub> was added with  
cooling. The resulting clear soln. was treated with 15.5  
g. bio-FeBe in small portions. The mixt. was distilled 5  
hrs. on a water bath, after which the alc. was driven off.  
The product was acidified with HCl and Et<sub>2</sub>O was poured  
through the mixt. A dark brown oil sepd. It was  
washed with H<sub>2</sub>O and dried over CaCl<sub>2</sub>. Vacuum distn.  
gave the following fractions: 87-90°, 0.8  
(13-14 mm.) gave the following fractions: 87-90°, 0.8  
g.; 90-125°, 1.0 g.; 125-7°, 16.4 g. Upon redistn. the  
1st fraction b. 87-8°, d<sub>4</sub> 1.8135, d<sub>20</sub> 1.7965, n<sub>D</sub> 1.530.  
Bis(methylphenylarsine) (I) is a yellow mobile liquid.  
sol. in ether, alc., CCl<sub>4</sub>, benz. in H<sub>2</sub>O. It is a lachry-  
mator. The 3rd fraction was ethylphenylarsine, 1 (5  
g.) was mixed with 5 cc. 10 N NaOH and cooled. A  
yield of 76% theory (2.2 g.) of bis(ethylphenylarsine)  
oxide, bp 133-3°, was obtained. It is a colorless, oily  
liquid of unpleasant odor. Bis(methylphenylarsine)  
oxide (80-90% yield), d<sub>4</sub> 1.4024, d<sub>20</sub> 1.4410, n<sub>D</sub> 1.5210;  
bis(ethylphenylarsine) oxide (90% yield), d<sub>4</sub> 1.3851,  
d<sub>20</sub> 1.3650, n<sub>D</sub> 1.5142; ethylphenylarsine, bp 140-  
70°, d<sub>4</sub> 1.2301; bis(ethylphenylarsine) oxide (78%  
yield), bp 174-8°, d<sub>4</sub> 1.2918, n<sub>D</sub> 1.5060; and bis(phenyl-  
arsine) oxide, m. 78-9° (lit. m. 75-7° C. A. 26,  
133), bp 252-3°, were analogously prepd. David Achary



*Pr*

PROCESSED AND REPRODUCED FROM THE ORIGINAL DOCUMENT

Preparation of the dinitrile of adipic acid. V. M. Zircastrova, S. R. Rafikov, and B. A. Arbutov (Inst. Org. Chem., Acad. Sci., U.S.S.R.). *Dokl. akad. sci. U.S.S.R., Chem. ser.* 1945, 120-6 (in English, 127).—The process of prepn. of adiponitrile from adipic acid, or its pure diamide, by distn. in a stream of dry  $NH_3$  and in the presence or absence of catalysts has been studied. The use of  $NH_3$  reduces the carbonization. About 0.5-1 mol. of adipic acid (m. 150-1°) in a Wurtz flask was heated to 170-180°; dry  $NH_3$  was passed through the flask (temp. rose to 170-80° accompanied the absorption of  $NH_3$ ); at the end of the reaction, the temp. went up to 200-10°. Then the catalyst was introduced, the temp. was raised by heating, and the dinitrile distd. off at 270-310°. The oily layer of the distillate (dinitrile, b.p. 163-4°) was upcl. off and washed several times with a weak aq. solution of  $NH_3$ . The aq. layer of the distillate and the washings were placed in the Wurtz flask and the water distd. off. Then the residue (nitrileamide of adipic acid, m. 63-4°) was distd. again in a stream of dry  $NH_3$  with 0.5-0.3 g. of added catalyst. This operation was repeated about 3 times. The following catalysts were used: 5%  $H_3PO_4$ , 3%  $HPO_3$ , 5%  $K_2HPO_4$ , 5%  $NH_4$  molybdate, 3% molybdic anhydride, 3%  $NH_4$  vanadate, 5% phosphotungstic acid, 10%  $B_2O_3$ . The best yield (80-45%) of adiponitrile was obtained in the presence of 3-5%  $H_3PO_4$ . The effect of the metal of which the app. was made on the yield of adiponitrile was studied. It was found that in a Fe flask adipic acid decarboxyl.; in an Al flask the yield of adiponitrile with 3%  $H_3PO_4$  was 78.1%; and with 5%  $H_3PO_4$  it was 83%; in a Cu flask the yield of adiponitrile without catalyst was 69.1% and with 3%  $H_3PO_4$  it was 80.6%. The method of prepn. of adiponitrile in the presence of  $H_3PO_4$  gave analogous results for sebacic acid; in glass app. with 5%  $H_3PO_4$  the yield of sebaconitrile, b.p. 201-4°, was 78.8%. Phthalonitrile could not be prepd. by this method; phthalimide is formed. G. Lebedeff

61-91A METALLURGICAL LITERATURE CLASSIFICATION

CLASS	SUBCLASS	SECTION	SERIAL	DATE	REMARKS
61	91	A			

CA 10

Diene compounds. 1. Simultaneous action of chlorine and ethylene oxide on butadiene. B. A. Arbuzov and V. M. Zoromstova. *Bull. acad. sci. U.R.S.S., Class. sci. chim.* 1949; 46: 2, 113-16 (in English, 118-16). -- The reaction of chlorine and ethylene oxide on butadiene has been studied. Besides the chlorination of butadiene, the addition of the elements of  $\text{CICH}_2\text{CH}_2\text{OCl}$  at the 1,2- and 1,1-positions, and the addition of 2 mole. of  $\text{CICH}_2\text{CH}_2\text{OCl}$  take place. All the products of addition have been isolated. G. Lebedeff

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

RESEARCH LITERATURE

1949

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



160 simultaneous action of chloroform and sodium alcoholate (as well as chlorine and acetic anhydride) on butadiene. D. A. Arimov and V. M. Zorogostov, *Compt. rend. acad. sci. U.R.S.S.* 53, 11-4 (1967); *cf. C.A.* 39, 1819. A detailed study of the addn. of Et hypochlorite and mixed anhydrides of acetic and chloroacetic acids to butynyl in order to investigate the general phenomena of 1,2- and 1,4-addn. is reported. The following compds. were obtained by repeated fractionation of the products from an alc. soln. of Na metal with Cl and butynyl until the resulting soln. was distinctly alk.: 1-chloro-2-ethoxy-3-butene (I), b. 130-4°,  $n_D^{20}$  1.4340,  $d_4^{20}$  0.9784,  $M_R$  35.90 (theoretical 35.90); 1-chloro-4-ethoxy-2-butene (II), b. 61-4°,  $n_D^{20}$  1.4480,  $d_4^{20}$  1.0070,  $M_R$  39.76; and (III) a product corresponding by analysis to a compound formed by the addn. of 2 mols. of EtOCl and 1 mol. butynyl, b. 80-1°,  $n_D^{20}$  1.4530,  $d_4^{20}$  1.1300,  $M_R$  51.20 (theoretical, 51.27). For identification, I was transformed by alc. alkali into ethylvinylpyrene,  $CH_2=C(OR)CH=CH_2$  (IV), b. 94-6°,  $n_D^{20}$  1.4600,  $d_4^{20}$  0.9380, and by the formation of  $MeCOCH=CH_2$  after the hydrolysis of IV. For identification II was converted by the action of alc. KOH into 1,4-diethoxy-2-butene (V), b. 83°,  $d_4^{20}$  0.9031,  $n_D^{20}$  1.4268,  $M_R$  41.93 (theoretical 42.15). III is receiving further study to locate the positions of the EtO groups and the Cl atoms. It is certain from the above results, that the entering groups of EtOCl are added to both the 1,2- and 1,4-positions of butadiene. The simul-

aneous action of Cl and AcCl, in the presence of anhyd. NaOAc, on butadiene is likewise reported. Repeated fractions produced the following products: 1-chloro-2-acetoxy-3-butene (VI), b. 56-6°,  $n_D^{20}$  1.445-6.5°,  $d_4^{20}$  1.1330,  $M_R$  35.48 (theoretical 35.90); 1-chloro-4-acetoxy-2-butene (VII), b. 42-4.5°,  $n_D^{20}$  1.4703,  $d_4^{20}$  1.1310,  $M_R$  39.10; a product (VIII) resulting from the addn. of 2 Cl atoms to VI or VII, b. 114-16°,  $n_D^{20}$  1.4703,  $d_4^{20}$  1.3010,  $M_R$  45.61 (theoretical 46.16); and a product (IX), m. 117.5°, resulting from the addition of 2 mols. AcOCl to butynyl. VI was converted by total KOH into 1,2-oxyvinyl (X), b. 85-7°,  $n_D^{20}$  1.4230,  $d_4^{20}$  0.9090. VII was not isolated in the pure state but was converted to 2-butene-1,4-diol (XI) and then by NaOAc into the diacetate,  $AcOCH_2CH=CHCH_2OAc$  (XII), m. 16-16°, b. 111°,  $d_4^{20}$  1.4842,  $n_D^{20}$  1.4670,  $M_R$  43.4 (theoretical, 44.98). VIII appears to be derived predominantly from VI. The structure of IX is likewise indubitable but appears to result from the simultaneous addn. of a mol. of AcOCl at the 1,2- and 1,4-positions.

The Cl content of II, III, VI, VII, VIII, and IX confirms the former conclusions.  
R. E. Dunlap

10

CO

PROCESSES AND PROPERTIES INDEX

The reaction of *N,N*-dichlorobenzeneisocyanide and butadiene in ethanol. B. A. Arbutov and V. M. Zorogova. *Compt. rend. acad. sci. U.R.S.S.* 33, 225-7 (1968) (in French).—Contrary to Petrov (*C.A.* 33, 5803<sup>u</sup>), alkyl hypochlorites add to the 1,4- as well as to the 1,2-positions of butadiene (I). The Ingold-Lapworth mechanism for addn. to double bonds is favored with the exception that complete ionization of the entering nucle. prior to addn. is not essential. To 150 ml. I in abs. EtOH cooled to -12° was gradually added 150 g.  $\text{PhSO}_2\text{NCl}_2$  (II) so that the temp. was maintained at -6 to -4°. A crys. ppt. (3 g.) of excess II, m. 88°, was filtered off. After removal of excess I and EtOH by distn.,  $\text{NaHCO}_3$  was added and the reaction product was steam-distd. After ether extrn. of the distillate and several refractionations, there were obtained 33 g. *1-chloro-3-ethoxy-2-butene*, b. 133-7°,  $d_4^{20}$  0.9377,  $n_D^{20}$  1.4328; 4 g. *1-chloro-4-ethoxy-2-butene* (III), b. 60-2°,  $d_4^{20}$  1.0037,  $n_D^{20}$  1.4420; 0.9 g. of the addn. product of 2 moles EtOCl to I, b. 90-1.6°,  $n_D^{20}$  1.4580. Treatment of III with alc. alkali gave *1,4-diethoxy-1-butene*, b. 78.5-9°.

Arthur Dolnick

ASB-348 METALLURGICAL LITERATURE CLASSIFICATION

1000 1700 2100 2200 2300 2400 2500 2600 2700 2800 2900 3000 3100 3200 3300 3400 3500 3600 3700 3800 3900 4000 4100 4200 4300 4400 4500 4600 4700 4800 4900 5000 5100 5200 5300 5400 5500 5600 5700 5800 5900 6000 6100 6200 6300 6400 6500 6600 6700 6800 6900 7000 7100 7200 7300 7400 7500 7600 7700 7800 7900 8000 8100 8200 8300 8400 8500 8600 8700 8800 8900 9000 9100 9200 9300 9400 9500 9600 9700 9800 9900

Preparation and properties of some cyclic esters of phosphoric acid. A. E. Arbuzov, V. M. Zaporozhaya, and N. I. Rizpolochenskii. *Bull. Acad. Sci. USSR Div. Chem. Sci. (Chem. Ed.)* 1948, 218-18. Reaction of  $\text{PCl}_5$  with  $(\text{CH}_2\text{OH})_n$ ,  $\text{MeOCH}_2\text{CH}(\text{OH})\text{CH}_2\text{OH}$ , 1,3-butanediol,  $(\text{CH}_3\text{CH}_2\text{OH})_n$ , and  $\text{O}(\text{CH}_2\text{CH}_2\text{OH})_n$  in dry  $\text{Et}_2\text{O}$  in the presence of pyridine

or  $\text{PhNMe}_2$  gave resp.:  $\text{CH}_2\text{CH}_2\text{O.PCl}_2\text{O}$ ,  $b_p$  41.5°,  $d_4^{25}$

1.4172,  $n_D^{25}$  1.4015;  $\text{MeOCH}_2\text{CH}_2\text{CH}_2\text{O.PCl}_2\text{O}$ ,  $b_p$  78.5-

79.2°,  $d_4^{25}$  1.3884,  $n_D^{25}$  1.4722;  $\text{MeCH}_2\text{CH}_2\text{CH}_2\text{O.PCl}_2\text{O}$ ,

$b_p$  65°,  $d_4^{25}$  1.2406,  $n_D^{25}$  1.4705;  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{O.PCl}_2\text{O}$ ,

$b_p$  74-8.5°,  $d_4^{25}$  1.2858,  $n_D^{25}$  1.5010; and  $\text{CH}_3\text{CH}_2\text{O}$ .

$\text{CH}_2\text{CH}_2\text{O.PCl}_2\text{O}$ ,  $b_p$  104-5°,  $d_4^{25}$  1.2803,  $n_D^{25}$  1.5165.

The products were isolated by filtration of the base-HCl, followed by distn. in vacuo. The yields of 5- and 6-membered ring deriva. were good, others were considerably poorer; the former are colorless, reactive liquids, fuming in

air; the 6-rings are more stable than the 5-rings. Derivs. with 7 or 8 atoms in the ring are very unstable, fume in the air, and burn when poured on a filter paper; even in sealed

tubes these, originally mobile colorless liquids, polymerize,

on standing, into yellowish gels. All of the cyclic compds. listed above give neutral esters of  $\text{H}_3\text{PO}_4$  with dry ROH in the presence of pyridine or  $\text{PhNMe}_2$ ; the same products are more readily obtained by reactions of  $\text{ROPCl}_2$  with the corresponding glycols. The following were prep. (no yields given):  $\text{CH}_2\text{CH}_2\text{O.P}(\text{OMe})_2\text{O}$ ,  $b_p$  55.4°,  $d_4^{25}$

1.2150,  $n_D^{25}$  1.4000;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{OEt})_2\text{O}$ ,  $b_p$  61.6°,  $d_4^{25}$

1.1317,  $n_D^{25}$  1.4395;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

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1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

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1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

1.0810,  $n_D^{25}$  1.4470;  $\text{CH}_2\text{CH}_2\text{O.P}(\text{O}i\text{Pr})_2\text{O}$ ,  $b_p$  71-2°,  $d_4^{25}$

Action of halo-substituted derivatives of *butadiene* and *anthracene*. V. M. Zorunov and L. A. Arguzov, *Doklady Akad. Nauk S.S.S.R.*, 69, 60-61 (1948).—Anthracene reacts with haloethylenes to give diene adducts, which are apparently bicyclic in nature, with the bridge across the 9,10-positions of anthracene. Anthracene (5 g.) and 20 ml. ( $\text{C}_2\text{H}_5\text{Cl}$ )<sub>2</sub> heated in a sealed tube 10 hrs. at 150–60° and 8 hrs. at 200–20°, filtered from 1.25 g. unreacted anthracene, and coned. yielded 4.5 g. of an adduct,  $\text{C}_{14}\text{H}_{12}\text{Cl}_2$ , m. 203–4° (from  $\text{C}_2\text{H}_5\text{Cl}$ : $\text{C}_2\text{H}_5\text{Cl}$ ). Anthracene (4 g.) and 15 ml.  $\text{C}_2\text{H}_5\text{Cl}$ : $\text{CCl}_4$  after 24 hrs. at 200–20° similarly gave 2.2 g. adduct, m. 140° (from  $\text{CHCl}_3$ : $\text{CCl}_4$ ). Anthracene (5 g.) and 15 ml. ( $\text{C}_2\text{H}_5\text{Cl}$ )<sub>2</sub> heated 62 hrs. at 200–30° gave much HCl, which indicated loss of HCl from the original adduct, and an adduct,  $\text{C}_{14}\text{H}_{12}\text{Cl}_2$ , m. 179–80° (from ( $\text{C}_2\text{H}_5\text{Cl}$ )<sub>2</sub>), which has active double bonds, as shown by the action of *hydroquinone*, which gave a product m. 238° (from *butene*-petr. ether). Heating 2 g. anthracene and an equiv. amt. of  $\text{AcOCH}_2\text{CH}=\text{CHCH}_2\text{OAc}$  28 hrs. at 200–20° gave 1.1 g. of an adduct,  $\text{C}_{14}\text{H}_{12}\text{O}_2$ , m. 108–9° (from  $\text{EtOEt}$ ). Butadiene (15 g.) and 40 g. ( $\text{C}_2\text{H}_5\text{Cl}$ )<sub>2</sub> heated 5 hrs. at 100–75° and 7 hrs. at 200–10° in the presence of *hydroquinone* gave 1.5 g. adduct,  $\text{C}_6\text{H}_6\text{Cl}_2$ , m. 43° (from  $\text{EtOH}$ ), b. about 135–6°, which is probably 1,2-dichloro-4-cyclohexene.  
G. M. Kotolapoff

[illegible][illegible]

gave 62.5%  $MnCH_2CH_2CH_2O P(OCH_2CH_2CH_2)_3O$  (II),  $b_p 82-83^\circ$ ,  $n_D^{20} 1.4580$ ,  $d_4^{20} 1.0777$ . I (0.4 g.) heated with 0.5

allyl iodide 2 hrs. at 50° after 15 hrs. at room temp. gave  
74.4%  $\text{MeCH}_2\text{CH}_2\text{CH}_2\text{O.P(O)(CH}_2\text{CH}_2\text{CH}_2)_2\text{O}$ ,  $b_p$  130-  
1°,  $d_4^{20}$  1.1510,  $n_D^{20}$  1.4680.  $\text{PhCH}_2\text{Cl}$  (7 hrs. at 145-50°)  
gave 43.5% crude  $\text{MeCH}_2\text{CH}_2\text{CH}_2\text{O.P(O)(CH}_2\text{Ph)}_2\text{O}$ ,  $b_p$   
100-3°,  $n_D^{20}$  1.5210,  $d_4^{20}$  1.1828; on standing the product  
deposited crystals of the pure product, m. 120° (from  $\text{C}_6\text{H}_6$ ).  
Addn. of 3.35 g.  $\text{AcBr}$  in  $\text{Et}_2\text{O}$  to 4.8 g. **1** in  $\text{Et}_2\text{O}$  with re-  
cooling gave 51% product,  $b_p$  142-3°,  $n_D^{20}$  1.4300,  $d_4^{20}$   
1.2544, which appeared to be  $\text{MeCH}_2\text{CH}_2\text{CH}_2\text{O.P(O)(Ac)}_2\text{O}$ ,  
contaminated with some Br deriv. Addn. of 1 mole **5** to **1**  
gave a spontaneous reaction and yielded 43%  $\text{MeCH}_2\text{CH}_2\text{CH}_2\text{O.P(S)(OCH}_2\text{CH}_2\text{CH}_2)_2\text{O}$ ,  $b_p$  158-60°,  $n_D^{20}$  1.5025,  
 $d_4^{20}$  1.2111. Heating **1** with  $\text{EtO}_2\text{CCl}$  to 50° 2 hrs. gave a  
dark, undistillable, halogen-free oil. Addn. of 0.51 g.  $\text{H}_2\text{O}$   
to 5 g. **1** gave a spontaneous reaction and distn. yielded  
 $\text{MeCH}_2\text{CH}_2\text{CH}_2\text{O.P(OH)}_2\text{O}$ ,  $b_p$  130-7°, m. 48-50°, a  
very hygroscopic solid. G. M. Kosolapoff

USSR/Chemistry - Organo-Phosphorus May/Jun 52  
Compounds

The Chloride of 1,2-dithiolethanephosphorous Acid  
and Its Derivatives," A. Ye. Arbutov, V. M.  
Zorostrove, Sci Res Inst of Chem Imeni A. M.  
Butlerov, Kazan State U Imeni V. I. Ulyanov.  
Lenin

"Iz. Ak. Nauk, SSSR Khim Nauk" No 3, pp 453-458

The cyclic chloride of dithiolethanephosphorous  
acid was synthesized by the action of  $\text{PCl}_3$  on  
1,2-dithioethane. Esters of this acid were  
synthesized both by the action of alc on the acid

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chloride in presence of pyridine, and by the action  
of Menschutkin's acid chloride on dithiolethane. The  
esters react with alkyl halides (methyl iodide,  
triphenylbromomethane). The structure of these re-  
action products was not established.

ZOROSTROVA, V. M.

22079

ARBUZOV, B.A.; SAYKINA, M.K.; ZOROASTROVA, V.M.

Thermographic studies of the interaction between esters of ethylene glycolphosphorous acid and alkyl halides. Izv. AN SSSR. Otd. khim. nauk no.9:1046-1052 S '57. (MIRA 10:12)

(MIRA 10:12)

1. Nauchno-issledovatel'skiy khimicheskiy institut im. A.M. Butlerova pri Kazanskom gosudarstvennom universitete im. V.I. Ul'yanova-Lenina.

(Esters)      (Phosphorous acid)      (Halides)



1. ARBUZOV, A. Ye.; ZORASTROVA, V. M.
2. USSR (600)
4. Esters
7. Substituted amides of cyclic esters of phosphorous acid, Izv. AN SSSR. Otd. khim. nauk, No. 5, 1952.
9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

ZORASTROYA, V. M.

Chemical Abst.  
Vol. 48 No. 8  
Apr. 25, 1954  
Organic Chemistry

Substituted phosphates of cyclic esters of phosphorous acid.  
A. E. Adzhaziz and V. M. Zorastroya. Bull. acad. sci.  
U.S.S.R., Chem. sci. div. 1952, 719-21 (Engl. translation).  
See C.A. 47, 10401c.  
R. L. H.

11-11-54  
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ARBUZOV, B. A.; ZOROASTROVA, V. M.; SAGITOVA, R. Kh.

Esters of phosphoric and phosphorothioic acids containing heterocyclic radicals. Report No. 6: Interaction of phosphoryl and thiophosphoryl chlorides with benzimidazole and morpholine. Izv AN SSSR Ser Khim no. 4:661-669 Ap '64.  
(MIRA 17:5)

1. Nauchno-issledovatel'skiy khimicheskiy institut im. A. M. Butlerova Kazanskogo gosudarstvennogo universiteta.

ARBUZOV, B. A.; ZOROASTROVA, V. M.; IBRAGIMOVA, N. D.

Esters of phosphoric acid containing a cyano group. Izv.  
AN SSSR Ser Khim no. 4:656-661 Ap '64. (MIRA 17:5)

1. Nauchno-issledovatel'skiy khimicheskiy institut im. A. M.  
Butlerova Kazanskogo gosudarstvennogo universiteta.

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ARBUZOV, A.Ye.; ZOROSTROVA, V.M.

Esters of glycol-phosphorous acids. II. Compounds with 6-member ring.  
Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk '52, 779-88. (MLRA 5:11)  
(CA 47 no.19:9901 '53)

ARBUZOV, A.Ye.; ZOBOASTROVA, V.M.

Complex compounds of esters of phosphorus acid. II. Complex compounds  
with salts of bivalent platinum. Izvest. akad. Nauk S.S.S.R., Otdel Khim.  
Nauk '52, 818-25. (MLRA 5:11)  
(CA 47 no.19:9899 '53)



ARBUZOV, A.Ye.; ZOROASTROVA, V.M.

Complex compounds of esters of phosphorus acid. III. Complex compounds  
with mercury salts. Izvest. Akad. Nauk S.S.S.R., Otdel Khim. Nauk '52,  
826-30. (MLRA 5:11)  
(CA 47 no.19:9900 '53)

ZOROASTROV, V. M.

ISSR/Chemistry - Organophosphorus  
Compounds 21 May 52

"Some Complex Compounds of Complete Phosphorous  
Acid Esters With Copper, Silver and Gold Salts,"  
Acad A. Ye. Arbutov, V. M. Zoroastrov, Sci Res  
Chem Inst Imeni A. M. Butlerov, Kazan State U Imeni  
V. I. Lenin

"Dokl Ak Nauk SSSR" Vol LXXIV, No 3, pp 503-506

A. Ye. Arbutov indicated that the reaction of com-  
plete esters of phosphorous acid with cuprous salts  
resulted in complex compounds like  $\text{CuX-P(OR)}_3$  and  
 $\text{CuX-2P(OR)}_3$ . These same esters also reacted with

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silver halide, producing complex compounds like  
 $\text{AgX-P(OR)}_3$ .  $\text{CuX-P(OR)}_3$  and similar complex compounds  
were found to have a triple mol wt. On the other  
hand, the mol wts of compounds like  $\text{CuX-2P(OR)}_3$  were  
not determined. The complex compounds, however, resulting  
from the reaction of phosphorous acid esters with  
silver halide also produced a triple mol. Finally,  
the action of triphenylphosphite on  $\text{AuCl-PCl}_3$   
brought forth the complex compound,  $(\text{C}_6\text{H}_5\text{O})_3\text{P-AuCl}$ .

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APPROVED FOR RELEASE: 03/15/2001

CIA-RDP86-00513R002065430003-8"

ZOROASTROVA, V.M.

ARBUZOV, B.A.; ZOROASTROVA, V.M.

Synthesis of phosphinic acid esters containing heterocyclic radicals  
Report no.5. Phosphinic acid esters with a dihydrocoumarin radical.  
Izv. AN SSSR, Otd. khim. nauk no. 4: 681-688 J1-Ag '55. (MLBA 9:1)

1. Khimicheskiy nauchno-issledovatel'skiy institut imeni A.M. Butlerova  
Kazanskogo universiteta imeni Ul'yanova-Lenina.  
(Phosphinic acid) (Dihydrocoumarin)

Translation in /M

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CIA-RDP86-00513R002065430003-8"

L 31359-66 EMP(j)/ENT(1)/ENT(m) RM/RO

ACC NR: AP6021099

SOURCE CODE: UR/0062/66/000/002/0254/0257

AUTHOR: Arbuzov, B. A.; Zoroastrova, V. M.

ORG: Scientific Research Chemical Institute im. A. M. Butlerov, Kazan' State University im. V. I. Ul'yanov-Lenin (Nauchno-issledovatel'skiy khimicheskii institut Kazanskogo gosudarstvennogo universiteta)

TITLE: Synthesis of esters of phosphinic acids containing heterocyclic radicals. Report 8. 2-methyl-3-(omega-phosphonemethyl)-quinoxaline esters with an alkyl group

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 2, 1966, 254-257

TOPIC TAGS: chemical synthesis, esterification, phosphinic acid, alkyl radical, fungicide, heterocyclic base compound

ABSTRACT: A description is given of phosphinic esters of 2-methyl-3-(omega-phosphonemethyl)quinoxaline. The compounds were prepared by the Arbuzov reaction of 2-methyl-3-(omega-chloromethyl)quinoxaline with trialkylphosphites. The authors did not succeed in obtaining the dimethyl ester of 2-methyl-3-(omega-phosphonemethyl)quinoxaline, nor the 2-methyl-3-(omega-phosphonemethyl)oxide of quinoxaline, despite frequent attempts. According to preliminary data, the compounds containing quinoxaline radicals described in the report show activity toward certain species of fungi. At present the fungicidal properties of esters of 2-methyl-3-(omega-phosphonemethyl)quinoxaline are under study. [JPRS]

SUB CODE: 07, 06 / SUBM DATE: 05Aug63 / ORIG REF: 001 / OTH REF: 002

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UDC: 542.91 + 661.718.1 + 547.7

L 01816-67 EWT(m)/EWP(j) RM

ACC NR: AP6035640

SOURCE CODE: UR/0062/66/000/001/0104/0107

AUTHOR: Arbuzov, B. A.; Zorostrova, V. N.

ORG: Scientific Research Chemical Institute im A.M. Butcherov, Kazan' State University im. B. I. Ul'yanov-Lenin (Khimicheskii Institut Kazan'skogo gosudarstvennogo universiteta)

TITLE: Esters of phosphoric and thiophosphoric acids containing heterocyclic radicals. Report 7. Reaction of phosphoric and thiophosphoric acid chlorides with carbazol

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 1, 1966, 104-107

TOPIC TAGS: organic phosphorus compound, heterocyclic base compound, ester, organic synthetic process

ABSTRACT: In an effort to synthesize esters of N-phosphone-carbazol, the authors used the potassium salt of carbazol and acetonitrile as a solvent. To a suspension of carbazol in anhydrous acetonitrile the dialkylphosphoric acid chloride was added. After separation of potassium chloride from the filtrate, the solvent was distilled under vacuum. The residue was purified by recrystallization from petroleum ether (b. p. 40-60°). The authors noted that the results depend to a great extent on the method used to prepare the carbazol salt. The

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ACC NR: AP6035640

potassium salt of carbazol obtained by the Sak method evidently contained excess alkali, and reactions carried out with this salt did not give positive results. On the other hand, the potassium salt of carbazol prepared by fusing equimolar amounts of carbazol and potassium hydroxide did not contain excess alkali. The compounds synthesized were: N-diethylphosphone-carbazol (m. p. 76°) and N-diisopropylphosphonecarbazol (m. p. 69-71°). The action of picric acid in alcoholic solution was used to obtain the corresponding nitrates of these compounds. The picrate of the former compound had a m. p. of 88-90° and the picrate of the latter -- m. p. 121-122.5°.

/JPRS: 37,177/

SUB CODE: 07 / SUBM DATE: 05 Aug 63 / ORIG REF: 003 / OTH REF: 001

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ARBUZOV, B.A.; ZOROSTROVA, V.M.

Phosphoric and thiophosphoric acid esters containing heterocyclic radicals. Report No.7: Reaction of phospheryl and thiophospheryl chlorides with carbazole. Izv.AN SSSR. Ser.khim. no.11 104-107 '66. (KTR 19:1)

1. Nauchno-issledovatel'skiy khimicheskii institut im. A.M. Butlerova Kazanskogo gosudarstvennogo universiteta im. V.I. Ul'yanova-Lenina. Submitted August 5, 1963.

ZOROASTROVA, V.M., MYSOYEDOVA, T.N.

Alkylphosphorus esters of tartaric acids.

Khimiya i Primeneniye Fosfororganicheskikh Soyedineniy (Chemistry and  
application of organophosphorus compounds) A. YE. ARBUZOV, Ed.  
Publ. by Kazan Affil. Acad. Sci. USSR, Moscow 1962, 632 pp.

Collection of complete papers presented at the 1959 Kazan Conference on  
Chemistry of Organophosphorus Compounds.

ARBUZOV, B.A.; ZOROASTROVA, V.M.; OSIPOVA, M.P.

Esters of phosphoric and thiophosphoric acids containing heterocyclic radicals. Report No.4: Reaction of phosphoric and thiophosphoric acid chlorides with  $\alpha$ -aminopyridine. Izv. AN SSSR Otd.khim.nauk no.12:2163-2168 D '61. (MIRA 14:11)

1. Khimicheskii institut im. A.M.Butlerova Kazanskogo gosudarstvennogo universiteta im. V.I.Ul'yanova-Lenina.  
(Phosphoric acid) (Phosphorothioic acid) (Pyridine)

ARBUZOV, B.A.; ZOROSTROVA, V.M.; ANTOKHINA, L.A.

Synthesis of phosphinic acid esters containing heterocyclic radicals. Report 7: Phosphinic acid esters with mono and di-oxidoquinoxaline radicals. Izv.AN SSSR.Otd.khim.nauk no.6, 1016-1022 Je '61. (MIRA 14:6)

1. Khimicheskiy institut im. A.M.Butlerova Kazanskogo gosudarstvennogo universiteta.

(Phosphinic acid) (Quinoxaline)

ARBUZOV, A.Ye.; ZOROASTROVA, V.H.; MYASOTENKOVA, T.N.

Mixed esters of phosphorous acid with ethyl d-tartrate. Izv. AN  
SSSR. Otd. khim. nauk no.12:2127-2134 D '60. (MIRA 13:12)

1. Nauchno-issledovatel'skiy institut khimii im.A.M.Butlerova  
Kazanskogo gosudarstvennogo universiteta i Kazanskiy khimiko-  
tekhnologicheskii institut im.S.M.Kirova.  
(Tartaric acid) (Phosphorous acid)

S/062/60/000/006/017/025/XX  
B020/B060

AUTHORS:

Arbuzov, B. A. and Zorcastrova, V. M.

TITLE:

Synthesis of Phosphinic Acid Esters Containing Heterocyclic Radicals. Communication 6. Interaction of Phosphorous Acid Esters With Furfurol. Pyromucic Acid, and Furyl Acrylic Acid

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1960, No. 6, pp. 1030-1034

TEXT: Papers by G. Kamay and V. A. Kukhtin (Ref. 1) have shown that neutral esters of phosphorous acid are added to  $\alpha,\beta$ -unsaturated aldehydes, giving rise to phosphinic acid esters. Conjugate systems with a larger number of double bonds were expected to be likewise capable of a similar addition. Similar systems are found in aldehydes and acids of the furan series. By the addition of trialkyl phosphites thereto, one obtains esters of phosphinic acids with substituted furan or dihydro furan radical. On heating triethyl phosphite and triisopropyl phosphite with furfurole at

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Synthesis of Phosphinic Acid Esters  
Containing Heterocyclic Radicals.  
Communication 6. Interaction of Phosphorous  
Acid Esters With Furfurole, Pyromucic Acid,  
and Furyl Acrylic Acid

S/062/60/000/006/017/025/XI  
B020/B060

160° the phosphite was oxidized to phosphate, namely by the oxygen of the aldehyde group. Small amounts of difuryl ethane were separated from the reaction products for a melting point of 100 - 101°. Trialkyl phosphite thus behaves as an oxygen acceptor and takes this oxygen from the aldehyde group. The interaction of triethyl phosphite with benzaldehyde under more rigorous conditions was experimentally observed. Also in this case, apart from the addition product of triethyl phosphate to the aldehyde group, the reaction described by V. S. Abramov (Ref. 2) yielded trialkyl phosphate and small amounts of stilbene for a melting point of 124 - 125°. The oxygen removal by means of phosphite, described in the article under consideration, has an analogy in the removal of sulfur from mercaptans and disulfides (Refs. 3, 4). On heating triethyl phosphite or triisopropyl phosphite with pyromucic acid at 130 - 160°, ethyl- or isopropyl esters of pyromucic acid were separated from the reaction products. The course of the reaction between triethyl phosphite and furyl

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ARBUZOV, B.A.; ZOROASTROVA, V.M.

Synthesis of esters of phosphonic acids containing heterocyclic radicals. Report No.6: Reactions of esters of phosphorous acid with furfurole and pyromucic and furylacrylic acids. Izv.AN SSSR.Otd.khim.nauk no.6:1030-1034 J1 '60. (MIRA 13:7)

1. Nauchno-issledovatel'skiy khimicheskii institut imeni A.M.Butlerova Kazanskogo universiteta.  
(Furaldehyde) (Furoic acid) (Furanacrylic acid)  
(Phosphorous acid)



5 (3)

AUTHORS:

Arbuzov, B. A., Zoroastrova, V. M.

SOV/62-59-6-14/36

TITLE:

The Esters of the Phosphoric- and Thiophosphoric Acid, Which Contain Heterocyclic Radicals (Efiry fosfornoy i tiofosfornoy kislota, sodержashchiye geterotsiklicheskiye radikaly). Communication 2. Alkylation of Some Heterocyclic Compounds by Means of the Derivatives of the Phosphoric- and Phosphorous Acid (Soobshcheniye 2. Alkilirovaniye nekotorykh geterotsiklicheskiye soedineniy proizvodnymi fosfornoy i fosforistoy kislota)

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 6, pp 1037 - 1040 (USSR)

ABSTRACT:

In a previous paper (Ref 1) the authors described a series of esters of phosphoric and thiophosphoric acid with pyrimidine and imidomethyluracil radicals. The compounds obtained proved to be biologically highly active. The present paper is a continuation of the first one. The authors wanted to obtain esters of the phosphoric acids with heterocyclic radicals (thiacine, benzoxazole, and benzothiazole), and to investigate their properties. Besides the substances expected by the influence of dialkylphosphoric acid chloride upon the potassium

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The Esters of the Phosphoric- and Thiophosphoric Acid, 30V/62-59-6-14/36  
Which Contain Heterocyclic Radicals. Communication 2.  
Alkylation of Some Heterocyclic Compounds by Means of the Derivatives of  
the Phosphoric- and Phosphorous Acid

salts of 4,6,6-trimethyl-6H-1,3-thiazine-2-thiol (I), 2-mercaptobenzoxazole (II) and 2-mercaptobenzothiazole (III), also alkylation products were produced of thiol. In the experimental part the following reactions are described: 1) K-salts of (I) with acid chloride of the di-isobutyl phosphoric acid; 2) K-salts of (I) with acid chloride of the diethyl phosphoric acid; 3) K-salts of (II) with acid chloride of the diethyl phosphoric acid; 6) K-salts of (III) with acid chloride of the diethyl phosphoric acid. Alkylation products of thiol were in good yield obtained by reaction of trialkylphosphites on the disulphides of the above mentioned heterocyclic compounds; 4) Disulphide of benzoxazole with triethylphosphite; 5) 2-benzoxazole sulphenylchloride with triethylphosphite; 7) disulphide of benzo thiazole with triethylphosphite; 8) disulphide of benzo thiazole with the ethylester of the ethyleneglycol phosphoric acid. There are 5 references, 3 of which are Soviet.

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The Esters of the Phosphoric- and Thiophosphoric Acid, SOV/62-59-6-14/36  
Which Contain Heterocyclic Radicals. Communication 2.  
Alkylation of Some Heterocyclic Compounds by Means of the Derivatives of  
the Phosphoric- and Phosphorous Acid

ASSOCIATION: Khimicheskiy institut im. A. M. Butlerova Kazanskogo gosudarst-  
vennogo universiteta im. V. I. Ul'yanova-Lenina (Chemical In-  
stitute imeni A. M. Butlerov of the Kazan' State University  
imeni V. I. Ul'yanov-Lenin)

SUBMITTED: August 15, 1957

Card 3/3

ARBUZOV, B.A.; ZOROASTROVA, V.M.

Esters of phosphoric and thiophosphoric acids containing heterocyclic radicals. Report No.1: Compounds containing pyrimidine and imidomethyluracil radicals. Izv. AN SSSR. Otd. khim.nauk no.11:1331-1339 N '58.  
(MIRA 11:12)

1.Khimicheskiy institut imeni A.M. Butlerova Kazanskogo gosudarstvennogo universiteta imeni V.I. Ul'yanova-Lenina.  
(Primidine) (Uracil) (Phosphoric acid)

5(3)

AUTHORS:

Arbuzov, B. A., Zoroastrova, V. M.

SOV/62-58-11-9/26

TITLE:

Esters of Phosphoric and Thiophosphoric Acids Containing Heterocyclic Radicals (Efiry fosfornoy i tiofosfornoy kislot, soderzhashchiye geterotsiklicheskiye radikaly)  
Communication I. Compounds Containing Pyrimidine and Imido-methyl Uracil Radicals (Soobshcheniye 1. Soyedineniya s pirimidinovym i imidometiluratsilovym radikalami)

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1958, Nr 11, pp 1331-1339 (USSR)

ABSTRACT:

In the present paper the authors synthesized a number of esters of the phosphoric and thiophosphoric acids with pyrimidine and imidouracil radicals. The physical properties of the obtained products are given (Table 1). Compounds Nr 1 and 2 are high-boiling, viscous, oily liquids easily soluble in the ordinary organic solvents and difficultly soluble in water. Compound Nr 2 was described by Shvetsova-Shilovskaya, Mel'nikov, and Grapov (Ref 2). Compound Nr 4 was obtained in liquid as well as also in crystalline state. The other compounds containing the pyrimidine radical, are low-melting solids. Products Nr 3, 4, 5 were obtained in good yields from

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Esters of Phosphoric and Thiophosphoric Acids  
Containing Heterocyclic Radicals.  
Communication I. Compounds Containing Pyrimidine and  
Imidomethyl Uracil Radicals

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the Na-salt of 2-phenyl-4-methyl-6-oxypyrimidine. Under the selected conditions no compound with the imidouracil radical could be obtained from Na-salt. They were produced by the interaction of Ag-salt and the acid chloride of dialkyl phosphoric acid in dry toluene or xylol in a yield of from 51.6 to 57.8 %. These compounds are low-melting crystalline solids. They are easily soluble in organic solvents, less easily soluble in water. It is a characteristic feature of all compounds that in compounds with an ethyl radical solubility in water is better than in compounds with normal and isobutyl radicals. The authors tried to obtain n-butyl ester (Nr 7) according to the method described (Ref 2). On this occasion, however, a product was separated which according to its analysis corresponded to the acid imidomethyl uracil butyl ester. Individual synthesized esters were saponified. In the course of saponification with hydrochloric acid (1:1) usually initial pyrimidines or imidomethyl uracil could be separated. Some of the synthesized compounds were examined by M. A.

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Esters of Phosphoric and Thiophosphoric Acids  
Containing Heterocyclic Radicals.  
Communication I. Compounds Containing Pyrimidine and  
Imidomethyl Uracil Radicals

SOV/62-58-11-9/26

Kudrina at the Kazanskiy filial Akademii nauk SSSR (Kazan'  
Branch of the Academy of Sciences USSR) with respect to  
their insecticide properties on *Calandra granaria* L. and to  
toxic properties on mice. The results are shown (Table 2).  
There are 2 tables and 4 references, 1 of which is Soviet.

ASSOCIATION: Khimicheskiy institut im. A. M. Butlerova Kazanskogo  
gosudarstvennogo universiteta im. V. I. Ul'yanova-Lenina  
(Chemical Institute imeni A. M. Butlerov , Kazan' State  
University imeni V. I. Ul'yanov-Lenin)

SUBMITTED: March 21, 1957

Card 3/3

**"APPROVED FOR RELEASE: 03/15/2001**

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ZORDASTROVA, E. A.  
CA

23

Chemical composition of Resin in the Far East. E. A. Zordastrova, *Bull. Far East. Branch Acad. Sci. U. S. S. R.* 23, No. 1, 194-202 (1939); *Chem. Zvesti* 1939, 11, 1214. -- Good yields of cellulose were obtained from *Abies sibirica* Max. and *Abies koreana* Max. (about 15%), as well as from *Pinus silvestris* L. (14.2%) and *Pinus koraiensis* Fieb. (12.8%). *Pinus koraiensis* Sch. et Zucc. showed a high resin content.  
M. G. Moore

ASAC, LLA METALLURGICAL LITERATURE CLASSIFICATION

FROM DIVISION

GROMAKOV, S.D.; ZOROATSKAYA, I.V.; LATYPOV, Z.M.; CHVALA, M.A.; EYDEL'MAN,  
Ye.A.; BADIYGINA, L.I.; ZARIPOVA, L.G.

Method of studying the phase diagrams of semiconductor systems.  
Zhur. neorg. khim. 9 no.10:2485-2487 0 '64.

(MIRA 17:12)

5(2,4)

AUTHORS:

Berg, L. G., Gromakov, S. D.,  
Zoroatskaya, I. V.

SCV/20-125-1-19/67

TITLE:

Accelerated Method for the Investigation of Phase Diagrams  
According to the Thermographic Method (Uskorennyy metod  
izucheniya diagramm sostoyaniya metodon termografii)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 1, pp 75-78  
(USSR)

ABSTRACT:

The authors suggest a simultaneous recording of thermographic data for 2, in some cases even 3 substances investigated. The thermal effects which take place in 2 samples were recorded clearly and separately on the differential curve even if they take place at almost the same temperatures. Thus, the investigation can be carried out twice as rapidly as in the normal case. This method, however, also has certain deficiencies: the main deficiency may be eliminated by the calibration of the differential thermocouple. This deficiency is due to the fact that heating in both samples takes place at a small temperature difference as far as the thermal properties of these samples are different. The suggested method was checked on the binary system  $KCl-SrCl_2$  (Ref 2).

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Accelerated Method for the Investigation of  
Phase Diagrams According to the Thermographic Method

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Its phase diagram is relatively complicated and therefore well suited for testing the utility of the new method (Fig 1). Some conclusions on the mechanism of the chemical interaction between the substances can be drawn from a comparison of the two heating curves. The authors here use only a few examples from the results obtained. They discuss the shape of the differential curves (Figs 2,3). The complicated shape of the curve (d, e, f) indicates that the effect concerned (575°) takes place in both samples. Actually, it should take place only in sample 2, then it would be expressed by a simple "endothermal line" which passes through point d' and f. If this effect is observed as an exothermic phenomenon also in sample 1 a complicated shape of the cooling curves results due to the combination. The mentioned example of an indefinite interpretation of the thermographic data is no fundamental difficulty in the accelerated method of the thermographic investigations suggested by the authors. The easiest method of removing these deficiencies is a repeated investigation of individual compounds

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Accelerated Method for the Investigation of  
Phase Diagrams According to the Thermographic Method

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which are combined with a sample of another composition or  
by recording only one sample. There are 3 figures and  
2 Soviet references.

ASSOCIATION: Kazanskiy gosudarstvennyy universitet im. V. I. Ul'yanova-Lenina  
(Kazan' State University imeni V. I. Ul'yanov-Lenin)

PRESENTED: October 25, 1958, by I. I. Chernyayev, Academician

SUBMITTED: March 10, 1958

Card 3/3

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**CIA-RDP86-00513R002065430003-8**

**APPROVED FOR RELEASE: 03/15/2001**

**CIA-RDP86-00513R002065430003-8"**

BERG, L.G.; GROMAKOV, S.D.; ZOROATSKAYA, I.V.; AVERKO-ANTONOVICH, I.N.

[Methods for selecting coefficients in chemical equations] Sposoby  
podbora koeffitsientov v khimicheskikh uravneniakh. Kazan', Izd-  
vo Kazanskogo univ., 1959. 147 p. (MIRA 14:10)  
(Chemical equations)

BERG, L.G.; GROMAKOV, S.D.; ZORQATSKAYA, I.V.

Faster thermographic method for investigating structural diagrams. Dokl.AN SSSR 125 no.1:75-78 Mr-Apr '59.

(MKRA 12:4)

1. Kazanskiy gosudarstvennyy universitet imeni V.I.Ul'yanova-Lenina. Predstavleno akademikom I.I.Chernyayevym.

(Phase rule and equilibrium)

(Thermochemistry)